

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

Claims 1-25 (Cancelled)

Claim 26 (Currently Amended): A method for simulating musculoskeletal strains on a patient for monitoring surgical interventions, the method comprising the steps of:

- a. determining individual musculoskeletal parameters of the patient;
- b. automatically determining individual musculoskeletal strains from the determined musculoskeletal parameters of the patient, wherein the individual musculoskeletal strains are a stretching in a bone, a muscle, a cartilage, a tendon, a ligament, a joint, or a connective tissue of the musculoskeletal system of the patient that results in injury, weakening, or overexertion of a joint or tissue of the musculoskeletal system;
- c. for the automatic determination of the individual musculoskeletal strains, comparing the individual musculoskeletal parameters with musculoskeletal reference parameters filed in a strain database constructed with empirical data, and musculoskeletal reference strains corresponding to the musculoskeletal reference parameters are determined as the individual musculoskeletal strains, the musculoskeletal reference parameters being present as discrete values in the strain database and the musculoskeletal reference parameters being compared with the individual musculoskeletal parameters by means of functional relationships; and
- d. evaluating the individual musculoskeletal strains in respect of at least one target criterion.

Claim 27 (Previously Presented): The method as claimed in claim 26, further comprising the steps of:

- e. varying at least one of the individual musculoskeletal parameters to obtain a varied musculoskeletal parameter;
- f. subsequently automatically determining the individual musculoskeletal strains taking into consideration the at least one varied musculoskeletal parameter; and

g. subsequently evaluating the individual musculoskeletal strains in respect of the at least one target criterion.

Claim 28 (Previously Presented): The method as claimed in claim 27, wherein steps e. to g. are repeated until a specified target value of at least one target criterion is reached.

Claim 29 (Previously Presented): The method as claimed in claim 28, wherein the individual and varied musculoskeletal parameters corresponding to the target value are output on an output unit, stored in a storage unit and/or transferred to a computer-assisted surgery system and/or to a surgical navigation system.

Claim 30 (Previously Presented): The method as claimed in claim 28, wherein the individual and varied musculoskeletal parameters corresponding to the target value serve as a basis for planning a surgical intervention, the positioning of components or the decision regarding the removal of temporary implants.

Claim 31 (Previously Presented): The method as claimed in claim 27, wherein the variation of the individual musculoskeletal parameters in step e. is carried out taking into consideration predefinable data for implants.

Claim 32 (Previously Presented): The method as claimed in claim 26, wherein the individual musculoskeletal strains are calculated from the determined individual musculoskeletal parameters.

Claim 33 (Previously Presented): The method as claimed in claim 32, wherein a biomechanical and/or a mathematical model is used as a basis for the calculation of the individual musculoskeletal strains.

Claim 34 (Previously Presented): The method as claimed in claim 33, wherein the biomechanical and/or mathematical model is adapted to the individual musculoskeletal parameters.

Claim 35 (Previously Presented): The method as claimed in claim 33, wherein the biomechanical and/or mathematical model is chosen on the basis of the determined individual musculoskeletal parameters from at least one database.

Claim 36 (Previously Presented): The method as claimed in claim 34, wherein the individual musculoskeletal strains are calculated with the aid of a musculoskeletal model taking into consideration the individual patient anatomy.

Claim 37 (Previously Presented): The method as claimed in claim 26, wherein the individual musculoskeletal strains are visualized for evaluation.

Claim 38 (Previously Presented): The method as claimed in claim 26, wherein the individual musculoskeletal strains are presented on the basis of an anatomical model, particularly in graph form and/or numerically.

Claim 39 (Previously Presented): The method as claimed in claim 26, wherein, by evaluation of the individual musculoskeletal strains, a rehabilitation process is evaluated and/or managed, particularly by means of Internet access.

Claim 40 (Previously Presented): The method as claimed in claim 26, wherein the individual musculoskeletal parameters of the patient are determined by measurements.

Claim 41 (Previously Presented): The method as claimed in claim 40, wherein at least one of the individual musculoskeletal parameters is measured automatically.

Claim 42 (Previously Presented): The method as claimed in claim 26, wherein individual movement parameters, particularly gait parameters, are determined, and these are used for the automatic determination of individual musculoskeletal strains.

Claim 43 (Previously Presented): The method as claimed in claim 42, wherein the individual gait parameters are determined from personal data stored in a database and/or are recorded individually for one person.

Claim 44 (Previously Presented): The method as claimed in claim 26, wherein the position and/or orientation of joints are used for a navigation system for computer-assisted surgery and/or the data from a navigation system are used for computer-assisted surgery.

Claim 45 (Previously Presented): A device for evaluating musculoskeletal strains on a patient, with means for carrying out the method as claimed in claim 26.

Claim 46 (Previously Presented): A movement analysis system coupled to the device as claimed in claim 45.

Claim 47 (Previously Presented): A navigation system for computer-assisted surgery for carrying out the method as claimed in claim 26.

Claim 48 (Previously Presented): The method as claimed in claim 26, wherein the musculoskeletal parameters are automatically measured anthropometric parameters.

Claim 49 (Previously Presented): The method as claimed in claim 26, wherein the target criterion include contact forces, degree of joint movement, fragment movements of a fracture or any combination thereof.

Claim 50 (Previously Presented): The method as claimed in claim 26, further comprising the step of automatically deriving anthropometric parameters from a system for computer-assisted surgery.